

WHAT IS CLAIMED:

- 1 1. A method of translating program code, comprising:
2 decoding said program code;
3 applying an interpreting algorithm to identify whether said program code is
4 interpretable by an interpreter;
5 if said program code is interpretable, interpreting the program code using the
6 interpreter; and
7 translating said program code using a translator when said program code is not
8 interpreted.
- 1 2. The method of claim 1, wherein said program code comprises a basic
2 block of program code.
- 1 3. The method of claim 1, wherein the step of applying a interpreting
2 algorithm comprises determining whether instructions in said program code are included
3 in a subset of instructions capable of being interpreted by the interpreter.
- 1 4. The method of claim 3, further comprising selecting the subset of
2 instructions as a portion of an entire instruction set for the program code.
- 1 5. The method of claim 4, wherein the subset of instructions selecting step
2 comprises selecting instructions from the entire instruction set which are executed most
3 frequently across at least one program application.
- 1 6. The method of claim 4, wherein the selected subset of instructions is
2 capable of interpreting a majority of the basic blocks of a specific target program
3 application.

1 7. The method of claim 4, wherein the subset of instructions is selected to
2 interpret a specific target program application.

1 8. The method of claim 1, wherein the step of applying an interpreting
2 algorithm to identify whether the program code is interpretable further comprises
3 determining whether an execution count of the program code is below a translation
4 threshold,
5 wherein the program code is translated by the translator if the execution count of
6 the program code is greater than or equal to the translation threshold.

1 9. The method of claim 2, wherein the step of applying an interpreting
2 algorithm to identify whether the basic block of program code is interpretable further
3 comprises determining whether an execution count of the basic block of program code is
4 below a translation threshold,
5 wherein the basic block of program code is translated by the translator if the
6 execution count of the basic block of program code is greater than or equal to the
7 translation threshold.

1 10. A computer-readable storage medium having software resident thereon in
2 the form of computer-readable code executable by a computer to perform the following
3 steps during translation of program code:

4 decoding said program code;
5 applying an interpreting algorithm to identify whether said program code is
6 interpretable by an interpreter;
7 if said program code is interpretable, interpreting the program code using the
8 interpreter; and
9 translating said program code using a translator when said program code is not
10 interpreted.

1 11. The computer-readable storage medium of claim 10, wherein said program
2 code comprises a basic block of program code.

1 12. The computer-readable storage medium of claim 10, wherein the step of
2 applying a interpreting algorithm comprises determining whether instructions in said
3 program code are included in a subset of instructions capable of being interpreted by the
4 interpreter.

1 13. The computer-readable storage medium of claim 12, said computer-
2 readable code further executable for selecting the subset of instructions as a portion of an
3 entire instruction set for the program code.

1 14. The computer-readable storage medium of claim 13, wherein the subset of
2 instructions selecting step comprises selecting instructions from the entire instruction set
3 which are executed most frequently across at least one program application.

1 15. The computer-readable storage medium of claim 13, wherein the selected
2 subset of instructions is capable of interpreting a majority of the basic blocks of a specific
3 target program application.

1 16. The computer-readable storage medium of claim 13, wherein the subset of
2 instructions is selected to interpret a specific target program application.

1 17. The computer-readable storage medium of claim 10, wherein the step of
2 applying an interpreting algorithm to identify whether the program code is interpretable
3 further comprises determining whether an execution count of the program code is below
4 a translation threshold,

5 wherein the program code is translated by the translator if the execution count of
6 the program code is greater than or equal to the translation threshold.

1 18. The computer-readable storage medium of claim 11, wherein the step of
2 applying an interpreting algorithm to identify whether the basic block of program code is
3 interpretable further comprises determining whether an execution count of the basic
4 block of program code is below a translation threshold,

5 wherein the basic block of program code is translated by the translator if the
6 execution count of the basic block of program code is greater than or equal to the
7 translation threshold.

1 19 A translator/interpreter apparatus for use in a computing environment
2 having a processor and a memory coupled to the processor for either translating or
3 interpreting program code, said translator/interpreter apparatus comprising:
4 a decoding mechanism configured for decoding said program code;
5 an interpreter mechanism configured for applying an interpreting algorithm to
6 identify whether said program code is interpretable by an interpreter and, if said program
7 code is interpretable, interpreting the program code using the interpreter; and
8 a translator mechanism configured for translating said program code using a
9 translator when said program code is not interpreted.

1 20. The translator/interpreter apparatus of claim 19, wherein said program
2 code comprises a basic block of program code.

1 21. The translator/interpreter apparatus of claim 19, wherein the interpreter
2 mechanism is further configured to determine whether instructions in said program code
3 are included in a subset of instructions capable of being interpreted by the interpreter.

1 22. The translator/interpreter apparatus of claim 21, further comprising an
2 instruction selecting mechanism for selecting the subset of instructions as a portion of an
3 entire instruction set for the program code.

1 23. The translator/interpreter apparatus of claim 22, wherein the instruction
2 selecting mechanism is further configured for selecting instructions from the entire
3 instruction set which are executed most frequently across at least one program
4 application.

1 24. The translator/interpreter apparatus of claim 22, wherein the selected
2 subset of instructions is capable of interpreting a majority of the basic blocks of a specific
3 target program application.

1 25. The translator/interpreter apparatus of claim 22, wherein the subset of
2 instructions is selected to interpret a specific target program application.

1 26. The translator/interpreter apparatus of claim 19, wherein the interpreter
2 mechanism is further configured to determine whether an execution count of the program
3 code is below a translation threshold,
4 wherein the program code is translated by the translator mechanism if the
5 execution count of the program code is greater than or equal to the translation threshold.

1 27. The translator/interpreter apparatus of claim 20, wherein the interpreter
2 mechanism is further configured to determine whether an execution count of the basic
3 block of program code is below a translation threshold,
4 wherein the basic block of program code is translated by the translator mechanism
5 if the execution count of the basic block of program code is greater than or equal to the
6 translation threshold.